

Emergency medicine residency training for out-of-hospital emergencies

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None

The new residency training program in family and community medicine requires a rotation responding to calls received by primary care and emergency services. The intensity of these rotations ranges from 25% of calls for first-year residents to 75% for fourth-year trainees. All emergencies in the Spanish autonomous community of Madrid are handled by the SUMMA112 emergency medical service, which has developed and launched a program specifically for these residents. The program is new to Spain, where until now no specialty training in emergency medicine has been offered. The developers created an educational unit with a coordinator, instructors in family and community medicine, and an organizing committee. The SUMMA112 syllabus is compatible with the training program of the Spanish national board for the specialty of family and community medicine, although additional competencies that are highly specific to emergency health services have been incorporated. Teaching and assessment methods have also been planned so that instructors will take a similar educational approach. This article explains these improvements to the syllabus so that the description can serve as a starting point once the specialty in emergency medicine is approved in Spain. [Emergencias 2009;21:144-150]

Key words: Family and community medicine. Emergency health services. On-call service. Training.

Introduction

Given the absence of a necessary specialty in emergency medicine (EM), specialists in family and community medicine have an employment opportunity in the field of EM. Although their training is aimed at working in the field of primary care, in practice these professionals have considerable experience in EM. In addition, the new training program for the specialty of family and community medicine includes a period of training in accident and emergency medicine¹. The program recommends that 25% of the shifts by residents from first to third year and 75% of the shifts in fourth year should be carried out in the emergency section of local health centers. Likewise, 12.5% of the shifts by fourth year residents should be performed in medical emergency services (EMS). This constitutes a new approach in the training of residents; it includes a series of specific skills to be acquired in the field of urgent atten-

tion and, moreover, in EM. In this way, while EM is developing its own specialty, these specialists in family and community medicine are also well prepared for EM work.

The effort required of hospital EMS to accommodate these residents is an important innovation. On the one hand, the much vaunted heterogeneity of the professional staff of emergency services makes the training they have to offer too varied. There is even a legal vacuum, since the lack of EM specialists means that EM professionals cannot hold the title of tutor as defined in the Royal Decree 183/2008 of 8 February². Furthermore, the inclusion of one more passenger in emergency vehicles involves complicated logistics in terms of individual protection, insurance etc. On the other hand, the incorporation of residents in the EMS may significantly enhance continuous training and research.

The Emergency Medical Service of Madrid SUMMA112 has been involved with the training

of specialty residents for years, but in a less regulated way. Residents attended the SUMMA 112 training department and were assigned a number of duty periods with different shifts and professionals, so that the final evaluation of duty work was not satisfactory. The professional did not know who the resident was, what their educational objectives were, how to carry out assessment, etc.

In the year 2007, SUMMA112 became an accredited collaborator of the Teaching Units of Family and Community Medicine. This appointment was accompanied by a change in approach and organization of resident training. We have developed an organizational structure based on the guidelines of the Spanish Society for Family and Community Medicine on the development of teaching units^{3,4}. The objective of this paper is to explain the changes, training and organizational objectives that have been implemented within one EMS to host residents so as to stimulate open debate on the training of these residents in other EMS.

Organizational structure and functions of the teaching unit

SUMMA112 has created the family and community medicine teaching unit. Although not formally required to do so, those responsible for the teaching unit have set up an organizational structure that is similar to a primary care teaching unit to carry out resident training. Thus we have a tutor, a co-ordinator and an advisory committee.

The tutor is the medical professional with accreditation and sufficient level of training and capacity to promote the learning, skills and attitudes required in specialist medical training². The tutor-resident partnership is the basic unit providing most transfer of knowledge and skills, and all the rest of the teaching unit is to serve its proper functioning. Accreditation of tutors corresponds to the advisory committee, as will be explained later.

The professional must meet certain requisites to be a tutor, as described by the Specialty National Commission⁵, including experience of at least one year in office, development of a teaching program, previous tutoring and research as well as involvement in working groups. SUMMA112 tutors must meet these minimum requirements. Re-accreditation, like other tutors, is required every four years. All SUMMA112 tutors begin their training

with a course organized by the Lain Entralgo Agency belonging to the Ministry of Health of the Community of Madrid. Accreditation depends on the management of each EMS, so, leaving aside the legal vacuum caused by the non-existence of EM specialists, the professionals best qualified to teach this material are those already working in EM and the SUMMA 112 management grants the professional his/her tutor status.

The coordinator of the teaching unit is appointed by the EMS management based on proposals by the advisory committee. The coordinator must be a professional with proven experience in care, teaching and research. The functions of the coordinator are to manage all aspects of the teaching unit.

The advisory committee is the official organ of the teaching unit which assumes the powers and competencies outlined by the law⁶. It consists of the coordinator, a representative of the autonomous region or corresponding health council (usually this position is filled by a public health care professional), a representative of the residents, a representative of the tutors and a public health technician. The public health technician is a member of the advisory commission and the teaching unit; this figure assists the coordinator in the implementation of the theoretical program and practice of the teaching unit.

According to the Royal Decree of 8 February² these figures must be recognized and remunerated by the management of each centre.

Teaching program: essential skills of emergency services

The new book of family and community medicine residents details a series of skills to be acquired during the training period. These skills are listed according to their level of priority and responsibility (Table 1), for the following areas: essential care related to the individual, family-related, related to the community and related to training and research. These training contents are not a simple list of activities, knowledge and skills, but also a useful tool for both the tutor and the resident to be always aware of the importance of each scheduled activity in the training period.

There is a specific section on accident and emergency care. In addition, each chapter outlines competencies that are relevant to this type of attention. Apart from those described in the pro-

gram, SUMMA112 has described a further series of specific skills for accident and emergency services (Annex 1). It is advisable to be familiar with all these competencies since they facilitate the establishment of objectives for rotation.

Teaching Methodology

Residents in training must complete six 12-hour duty periods where the most common procedures and protocols in emergency care are explained. The teaching unit provides the tutors with a number of methodological tools for training. Of particular importance is the so-called teaching contract, where learning is based on problem-solving and sessions.

The teaching contract is a document drafted by the tutor and the resident at the beginning of rotation, reflecting the objectives of the training period in the most explicit terms possible. This document should be written and then kept in a visible place. It describes the main areas and skills to be covered during the time available.

Apart from the teaching contract, day-to-day learning should be based on problem solving, and students use elements of the case or scenario to define their own learning goals⁷.

In the process of acquiring specific skills (eg orotracheal intubation, placement of cervical collar, etc.) under supervision of the tutor, the resident encounters new problems, which are discussed with the tutor. Thus, this type of learning situation creates a feedback loop with the tutor.

Finally, further learning takes place in sessions once the resident has already acquired some experience and knowledge in the area of interest. These sessions may be bibliographic, monographic or focused on clinical cases. It is advisable to avoid the classical lecture model and use other models such as "discussion groups" (groups of two or three people discuss a particular topic followed by pooling), "short interventions" (each person gives their views in a short space of time), "fish tanks" (internal group that discusses a topic with another observer and then change the roles) or "snowball groups" (a small group focusing on a topic is progressively joined by more and more participants until the entire student group is incorporated).

When these models work well, the discussion allows students to clarify concepts, expressed in the language of the topic, and establish closer

Table 1. Levels of priority and responsibility

Priority Levels

- Priority I: essential, where absence questions the resident's ability.
- Priority II: important skills to be acquired by most residents.
- Priority III: excellence, its acquisition is the optimal degree of training.

Levels of responsibility

- Primary level: the family doctor should be able to identify assess and treat these problems without support of other professionals in 90% of cases.
- Secondary level: a query to another level is normal in the course of assessment or diagnosis of the problem.
- Tertiary level: the diagnosis and treatment of these problem are competency of other specialists.

contact with the tutors than would be the case if more formal models were used⁵.

Overall evaluation plan

Evolution is the essential part of the educational process, centred on quality improvement, and is analogous to a clinical audit⁵. Evaluation is necessary for both the student and the teacher. Through ongoing assessment we identify the failures and successes of the training system. In EMS, ongoing assessment and the teaching portfolio are considered to be the necessary elements for evaluation. In addition, the resident must fill out a questionnaire on satisfaction with the completed rotation.

In continuous assessment, the process of resident learning is evaluated in accordance with the continuous supervision provided by the tutor, either directly or indirectly. It is based on monitoring the resident's compliance with objectives set out in the teaching program, and reflected in a record created for this purpose taken from the assessment of teaching units in family and community medicine (Annex 2).

The teaching portfolio is an assessment tool consisting of a collection of information and documentation that provides evidence on whether a learning process has been completed and whether the student has achieved set educational objectives.

It is a training assessment tool which includes analysis and reflection on the action taken, enabling students to show what has been learned and how it has been learned, in a very personal and complete way, and is documented with representative material.

The evaluation of skills or competencies (called

ECOe in our system) is the process by which the evaluation is conducted, evaluating the interaction of the student with the real environment. The ECOe approximates what would be the gold standard of medical skills evaluation, since it covers clinical skills, contact with the patients and the student's abilities. Officially it has been used in the examination for special access to the title of specialist in family and community medicine, but it would be advisable to expand its use to include evaluation of the the period of residence.

A parallel assessment is to determine the adequacy of implementing this system by a survey amongst professionals, including tutors and residents. At present, we use the resident satisfaction survey and the open anonymous tutor letter where they express the successes, failures and possible improvements to the system.

References

- 1 (Orden SCO/1198/2005 3 de Marzo) Programa de la Especialidad de medicina familiar y comunitaria. Boletín Oficial del Estado núm. 105 de 3 de Marzo de 2005.
- 2 REAL DECRETO 183/2008, de 8 de febrero, por el que se determinan y clasifican las especialidades en Ciencias de la Salud y se desarrollan determinados aspectos del sistema de formación sanitaria especializada.
- 3 REAL DECRETO 183/2008, de 8 de Febrero, por el que se determinan y clasifican las especialidades en Ciencias de la Salud y se desarrollan determinados aspectos del sistema de formación sanitaria especializada.
- 4 ORDEN SCO/581/2008 de 22 de febrero, por la que se publica el Acuerdo de la Comisión de Recursos Humanos del Sistema Nacional de Salud, por el que se fijan criterios generales relativos a la composición y funciones de las comisiones de docencia, a la figura del jefe de estudios de formación y al nombramiento de tutor.
- 5 Documento de consenso. Acreditación y reacreditación de tutores de medicina familiar y comunitaria. 25 de Septiembre de 2005. Comisión Nacional de la Especialidad.
- 6 Orden Ministerial de 22 de Junio de 1995 por la que se regulan las comisiones de docencia y los sistemas de evaluación de la formación de médicos y de farmacéuticos especialistas.
- 7 Catillon P, Hutchinson L, Word D. Aprendizaje y docencia en medicina. Cuadernos de la fundación dr. Antonio Esteve. Barcelona: Fundación dr. Antonio Esteve; 2006.

Programa de formación de residentes en un sistema de emergencias extrahospitalarias

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En el nuevo programa de la especialidad de Medicina Familiar y Comunitaria (MFyC) se incluye un periodo de rotación en formato de guardias en servicios de urgencias de atención primaria y de emergencias. Este periodo varía entre el 25% de las guardias de los residentes de primer año y el 75% de los de cuarto año. En este sentido en la Comunidad de Madrid toda la asistencia de urgencias y emergencias es competencia del Servicio de Urgencia Médica de Madrid SUMMA112, por lo que este Servicio ha puesto en marcha un programa específico para dar cabida a estos residentes, lo cual resulta novedoso para los Servicios de Emergencias Médicas en general al carecer en España, a día de hoy, de una especialidad específica de Medicina de Urgencias y Emergencias. Se ha creado una unidad docente de MFyC con coordinador, tutores y comisión asesora. Se ha redactado un programa formativo del SUMMA112 que se extrae del programa formativo de la comisión nacional de la especialidad de MFyC. Pero, además, se ha ampliado con algunas competencias muy específicas de los servicios de emergencias que no venían recogidas en el documento anterior. Asimismo, se ha elaborado un plan sobre la metodología docente a aplicar y un plan evaluativo global para que todos los tutores lleven una línea educativa similar. El objetivo de este artículo es explicar estas mejoras, puesto que puede constituir un buen punto de partida para cuando se apruebe la especialidad de Medicina de Urgencias y Emergencias en España. [Emergencias 2010;22:144-150]

Palabras clave: Medicina Familiar y Comunitaria. Servicio de Urgencias. Guardias. Formación.

1.- ESSENTIAL SKILLS TEACHING AREA.

1.1.- AREA OF CARE AND COMMUNICATION. CLINICAL INTERVIEW. DOCTOR-PATIENT RELATIONSHIP.

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident know the specific skills required in communicating with patients in cases of urgent / life-threatening pathology: resources for guiding the interview initially towards the most clinically important aspects (protocols ABC, etc.)?						

1.3.- CARE MANAGEMENT AREA

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
II	Does the resident know the basics of outpatient emergency service organization, regarding care, training, research and teaching aspects?						
II	Does the resident know the organizational and operational models of the relationship between medical, nursing and emergency medical technicians in out-of-hospital emergency medical services?						
II	Does the resident know the organizational and operational models of the relationship between the staff of emergency medical outpatient services and other security or emergency services (police, fire brigade.), where joint action is required?						

1.3.4.- INFORMATION SYSTEMS

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
III	Does the resident know and manage the telecommunications systems commonly used in out-of-hospital emergency medical services?						

1.3.5.- QUALITY MANAGEMENT

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident know and manage the systematic coding of diagnoses and procedures in clinical practice (ICD-9-CM, etc.)?						
III	Does the resident know the areas for improvement addressed in the management contract, the clinical relevance and institutional indicators established for monitoring compliance?						

1.3.6.- PROFESSIONAL RESPONSIBILITY

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident know and properly handle the legal regulations concerning forced hospital internment (Article 763 of the LEC) and adequately prepare reports and notice of transfer?						
I	In expected death situations, does the resident know the usual procedures for collaboration with EAP (primary care teams) and ESAD (Homecare Support Teams) and how to properly draft a death certificate when necessary?						
I	In the specific situations of sexual assault, domestic violence or violence against a minor, in addition to medical care: Does the resident know the procedures for action and communication with the competent authority, and how to properly issue the relevant reports and notices?						
I	In situations of unexpected or violent death: Does the resident know the procedures for reporting to the police and the judicial committee, and how to issue the relevant reports and death certificate?						
I	Does the resident know and adequately fulfil the procedures established to ensure adequate staffing and proper functioning of his/her operational unit regarding medication, equipment and health material?						

Anex I. Exclusive competencies of the accident and emergency services.

(Continued)

1.4.- AREA OF BIOETHICS

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident evaluate all the circumstances of the patient, aspects relating to prognosis of the disease and the consequences of each therapeutic act for deciding clinical actions in cases of vital emergency?						
II	Does the resident know the procedures relating to document registers of wills and take them into account in clinical decisions, in cases medical emergency in patients with inability to express their will?						

2.- TEACHING AREA OF COMPETENCIES RELATED TO INDIVIDUAL ATTENTION.

2.1.- APPROACH TO HEALTH NEEDS AND PROBLEMS.

2.1.10.- SPECIFIC COMPETENCY: INJURIES, ACCIDENTS AND POISONING.

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident evaluate the nature and extent of an accident and properly consider them when deciding on a plan of action to be carried out?: Measures aimed at the causal agent to neutralize or limit its effect, measures for further accident prevention to protect the patient, equipment or third parties, etc.						
I	Does the resident know and handle the procedures for action in situations with multiple victims in the out-of-hospital setting, as the first physician to arrive on the scene or after other physician/s?						
I	Can the resident evaluate and adequately assess the physical circumstances and the mechanisms responsible for the situation, as an important source of clinical information for the treatment and management of a patient?						
II	Does the resident know how to handle proper techniques for the extrication and rescue of patients?						
II	Does the resident know and properly handle the techniques for mobilization and immobilization of trauma patients?						
III	Can the resident manage the diagnosis and treatment of: shock wave syndrome.						
III	Can the resident manage the diagnosis and treatment of: crushing syndrome crushing.						
III	Can the resident manage the diagnosis and treatment of: heat syndrome.						
III	Can the resident manage the diagnosis and treatment of: cold syndrome.						
III	Can the resident manage the diagnosis and treatment of: electrocution.						

2.1.16.- SPECIFIC COMPETENCY: FOCUS ON ACCIDENT AND EMERGENCY MEDICINE.

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident know how to perform and interpret the following diagnostic techniques: pulse oximetry?						
III	Does the resident know how to perform and interpret the following diagnostic techniques: capnography?						
II	Does the resident know the indications for and how to perform the following therapeutic techniques: safety and protection of the airway in orotracheal intubation?						
II	Does the resident know the indications for and how to perform the following therapeutic techniques: safety and protection of the airway when non-invasive alternative methods are used?						

Anex I. Exclusive competencies of the accident and emergency services (cont.).

(Continued)

III	Does the resident know the indications for and how to perform the following therapeutic techniques: mechanical ventilation and assisted ventilation?						
III	Does the resident know the indications for and how to perform the following therapeutic techniques: non-invasive ventilatory support?						
III	Does the resident know the indications for and how to perform the following therapeutic techniques: urgent treatment of hemo-pneumo-thorax?						
III	Does the resident know the indications for and how to perform the following therapeutic techniques: intraosseous line placement?						
II	Does the resident know the different medical transport resources available in his/her setting and appropriately evaluate the circumstances for the proper selection of the most appropriate in each case?						
III	Does the resident know the specific pathophysiological factors relevant to for medical transportation?						

2.2.- APPROACH TO POPULATION GROUPS WITH RISK FACTORS.

2.2.1.- SPECIFIC COMPETENCY: CHILD CARE.

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident know how to perform: neonatal resuscitation.						
I	Does the resident know how to perform: pediatric advanced life support.						
III	Does the resident know how to perform: umbilical vein cannalization.						

6.- TEACHING AREA OF COMPETENCE IN RELATION TO THE PREVENTION OF ACCIDENTS AT WORK

6.1.- PASSIVE PREVENTION AREA.

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
I	Does the resident know and adequately use the individual safety kit (EPI): clothing, boots, helmet, goggles, masks, EPI NRBQ, etc.?						
III	Does the resident know and properly manage optical and acoustic devices in emergency vehicles?						
III	Does the resident know and verify compliance with established procedures to ensure the proper state and mechanical operation of the vehicle of his/her operational unit?						

6.2.- ACTIVE PREVENTION AREA.

	YEAR OF RESIDENCE	R0	R1	R2	R3	R4	Tutor
P	COMPETENCY						
III	Does the resident know, at least in its basic rules, the Highway Code?						
III	Does the resident know the labelling of dangerous substances?						
III	Does the resident know the safety signs at the workplace?						
I	Does the resident know and properly handle action procedures in the out-of-hospital setting for the prevention of accidents in relation to him/herself and the other members of the team?						
II	As far as possible, does the resident know how to condition the intervention site for the prevention of risks associated with the work (over-exertion, prolonged forced postures, etc.)?						
II	Does the resident know and properly handle biosecurity healthcare material?						
II	Does the resident know and properly handle the procedures for isolation in case of potentially infectious diseases?						
III	Does the resident know and properly handle the procedures for disinfection of medical equipment?						
III	Does the resident know and properly handle vehicle decontamination?						

Anex I. Exclusive competencies of the accident and emergency services (cont.).

**ROTATION EVALUATION OF FAMILY AND COMMUNITY
MEDICINE RESIDENTS (TO BE COMPLETED BY THE TUTOR)**

DATE:	
STUDENT:	
TUTOR:	
AREA OF ORIGIN:	DURATION OF ROTATION:
UME/CCU/VIR/SUAP:	YEAR OF RESIDENCE: R-
HEAD OF CARE UNIT:	

CONTINUOUS ASSESSMENT (SCALE: 0,1,2,3; SEE COMMENTS)

A.- KNOWLEDGE AND SKILLS	RATING
LEVEL OF THEORETICAL KNOWLEDGE	
LEVEL OF SKILLS ACQUIRED	
SKILL IN DIAGNOSIS	
ABILITY TO MAKE DECISIONS	
RATIONAL USE OF RESOURCES	
<i>AVERAGE (A)</i>	

B.- ATTITUDES	RATING
MOTIVATION	
DEDICATION	
INITIATIVE	
PUNCTUALITY / ATTENDANCE	
LEVEL OF RESPONSIBILITY	
RELATION WITH PATIENT / FAMILY	
RELATIONS WITH WORK TEAM	
<i>AVERAGE (B)</i>	

CONTINUOUS ASSESSMENT RATING
(AVERAGE A x 70 + AVERAGE B x 30)/100=

<i>RATING</i>

Date: ____ a ____ de 200__

THE TUTOR:

THE STUDENT:

Anex II. Continuous evaluation.